

layers which follow one another in a stack and are structured to form at least one capillary area which extends between the first cooling or vaporization area and the second condensation area , and that at least one other metal layer is structured to form a vapor channel structure with are least one vapor channel, such that the at least one vapor channel extends between the first area and second area and has a flow cross section which is larger than a flow cross section of the at least one capillary area.

32. The cooler as claimed in claim 31, wherein there is at least one capillary area on either side of the vapor channel structure.

33. The cooler as claimed in claim 31, further comprising flat top and bottom surface.

34. The cooler as claimed in claim 31, wherein the cooler is formed as a rectangular plate, and the first area and the second area are separated on either side of the cooler by an imaginary center plane (M) which runs perpendicular to a lengthwise extension (L) of the cooler.

35. The cooler as claimed in claim 31, wherein the first area has on at least one surface side of the cooler, at least one electrical component or at least one surface for attaching the at least one electrical component.

36. The cooler as claimed in claim 31, further comprising an auxiliary cooling means on at least the second area.

37. The cooler as claimed in claim 36, wherein the auxiliary cooling means is a cooling element which dissipates heat to ambient air or an ambient medium.

[illegible][illegible][illegible]

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	

capillary structure in the vapor channel structure in planes of these layers perpendicular hereto form continually changing flow paths between the first and the second area.

44. The cooler as claimed in claim 31, wherein the plurality of openings of at least one metal layer is surrounded by material crosspieces which are joined to one another or which branch in the manner of a network and which form a ring structure around each opening.

45. The cooler as claimed in claim 44, wherein the material crosspieces form a hexagonal ring structure around each opening.

46. The cooler as claimed in claim 44, wherein the ring structure has at least three corner points which form a triangle.

47. The cooler as claimed in claim 31, wherein the first and second areas form continuous post-like or column-like areas.

48. The Cooler as claimed in claim 46, wherein the continuous post-like or column-like areas are formed by the corner points of the ring structure.

49. The cooler as claimed in claim 31, wherein the at least two metal layers are made identical in at least one capillary structure, but adjacent layers are turned one to another.

50. The cooler as claimed in claim 1, wherein a structured area of the at least one metal layer has angular openings or breaches.

52. The cooler as claimed in claim 31, wherein the at least one metal layer which forms the capillary structure in a structured area is provided with a plurality of slotted openings.

54. The cooler as claimed in claim 53, wherein the angle is 90°.

56. The cooler as claimed in claim 31, wherein the at least one capillary structure is formed by at least one channel in which there is a material which supports and/or produces a capillary action.

58. The cooler as claimed in claim 31, wherein the at least two metal layers are partially made from metal.

60. The cooler as claimed in claim 31, wherein structure widths are in the range between 50 - 1000 microns.

REMARKS

Respectfully submitted,

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